## (19) World Intellectual Property Organization International Bureau





(43) International Publication Date 11 November 2004 (11.11.2004)

**PCT** 

(10) International Publication Number WO 2004/096943 A1

(51) International Patent Classification<sup>7</sup>: 11/81

C09K 11/02,

(21) International Application Number:

PCT/EP2004/004573

(22) International Filing Date: 29 April 2004 (29.04.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 03009705.9

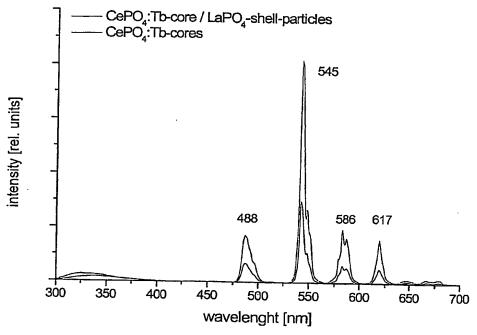
30 April 2003 (30.04.2003) EI

- (71) Applicant (for all designated States except US): NANOSOLUTIONS GMBH [DE/DE]; Schnackenburgallee 149, 22525 Hamburg (DE).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): MEYER, Christiane [DE/DE]; Schäferstrasse 8, 20357 Hamburg (DE). HAASE, Markus [DE/DE]; Klaus-Nanne-Strasse 60, 22457 Hamburg (DE).

- (74) Agents: HOFFMANN . EITLE et al.; Arabellastrasse 4, 81925 München (DE).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

## (54) Title: LUMINESCENT CORE/SHELL NANOPARTICLES



(57) Abstract: The present invention relates to Luminescent nanoparticles comprising (a) a core made from a luminescent metal salt selected from phosphates, sulfates or fluorides, being surrounded by (b) a shell made from a metal salt or oxide capable of preventing or reducing energy transfer from the core after its electronic excitation to the surface of the nanoparticle, e.g. a shell made from a non-luminescent metal salt or oxide, which are characterized by higher quantum yields and can be used in various fields including light generation and security marking.

## WO 2004/096943 A1



## Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.